# Safety of Vendor-Prepared Foods: Evaluation of 10 Processing Mobile Food Vendors in Manhattan

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### **SYNOPSIS**

**Objectives.** Unsanitary food handling is a major public health hazard. There are over 4,100 mobile food vendors operating in New York City, and of these, approximately forty percent are processing vendors—mobile food units on which potentially hazardous food products are handled, prepared, or processed. This pilot study assesses the food handling practices of 10 processing mobile food vendors operating in a 38-block area of midtown Manhattan (New York City) from 43rd Street to 62nd Street between Madison and Sixth Avenues, and compares them to regulations stipulated in the New York City Health Code.

**Methods.** Ten processing mobile food vendors located in midtown Manhattan were observed for a period of 20 minutes each. Unsanitary food handling practices, food storage at potentially unsafe temperatures, and food contamination with uncooked meat or poultry were recorded.

**Results.** Over half of all vendors (67%) were found to contact served foods with bare hands. Four vendors were observed vending with visibly dirty hands or gloves and no vendor once washed his or her hands or changed gloves in the 20-minute observation period. Seven vendors had previously cooked meat products stored at unsafe temperatures on non-heating or non-cooking portions of the vendor cart for the duration of the observation. Four vendors were observed to contaminate served foods with uncooked meat or poultry.

**Conclusions.** Each of these actions violates the New York City Code of Health and potentially jeopardizes the safety of these vendor-prepared foods. More stringent adherence to food safety regulations should be promoted by the New York City Department of Health.

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The sidewalk vendor is a cultural icon of New York City. At present, more than 4,100 mobile food vendors are operating in New York City, around 40% of whom are classified as processing mobile food vendors. Mobile food processing units include any mobile food unit on which foods are prepared or processed, or in which potentially hazardous foods are handled. This includes the sale or distribution of any foods that require cooking or any other treatment (e.g., slicing, mixing, packaging, etc.) that exposes food to possible contamination. It does not include the boiling of hot dogs. A mobile food vendor license, cart permit, and a valid food safety certificate issued by the Department of Health are the only requirements for operating a processing mobile food vending unit in New York City. A fee of fifty dollars must be paid to obtain the necessary license and three hundred dollars to obtain a permit. Vendors are not required to have a valid food safety certificate if they can produce a current receipt showing registration for the food safety course, even without evidence of completion. Although processing vendors are required by the city to enroll in a 15-hour course to obtain the food safety certificate, many vendors do not attend the class. Failing to show a safety certificate is one of the most common inspection violations.<sup>2</sup>

In recent years, the range of products served by mobile vendors has changed. Since the mid-1980s, mobile food vendors have been expanding their menus from the bourgeois hot dog and pretzel to more ethnically diverse cuisine; e.g., curried chicken with rice, lamb souvlaki, ox-tail, jerk pork, bratwurst, vegetable lo mein. Any of these involve products that are defined by the city as potentially hazardous—foods consisting of (in whole or in part) milk or milk products, eggs, meat, poultry, fish, shellfish, crustacea, cooked potato, cooked rice, or ingredients in a form capable of supporting rapid and progressive growth of infectious or toxogenic microorganisms, including C. botulinum (Article 81.03q).<sup>3</sup> Preparation of these foods involves the storage and processing of these potentially hazardous products in mobile vending units that lack basic kitchen equipment and refrigeration, yet require the same safety standards demanded of restaurants. These dangers are not specific to mobile vendors. They are the same controllable dangers present at any site of food preparation and can be minimized with proper attention to the city health code (see Appendix I).

The New York City Health Department, through its Division of Mobile Vendor Inspections, is responsible for monitoring vendor practices by initiating unannounced inspections. However, these inspections are sporadic and vendors without permits, safety training,

and even chronic health violators continue to sell food on the streets of New York City.2 In contrast to restaurants with established locations, information regarding the past history of health violations of mobile vendors is much more difficult for the public to acquire. Our requests to the New York City Office of Public Records to obtain records of mobile food vendor inspections and violations were not processed. Thus, it is hard to determine how often the thousands of mobile vendors are inspected, what types of violations are most commonly issued, and how regularly vendors are forced off the streets.

The potential for unsafe or unsanitary food handling is great. For any vendor who prepares food, clean hands and facilities for handwashing are conditions mandated by New York City legislature (Article 81.07k).3 Bare hand contact is a violation of the New York City Health Code and vendors are obligated to provide a barrier between bare hands and served foods (Article 81.071).3 Gloves are recommended but not required. Vendors are also obliged to have a commissary location in which the vending unit can be regularly cleaned and stored overnight (Article 89.31).1

The New York City Council Office of Oversight and Investigations conducted a surveillance study of the practices of 254 New York City vendors in 1995. They reported that the majority of vendors, (a) did not wash their hands after selling food or handling money, (b) touched food with their bare hands, and (c) did not have their hair covered.<sup>4</sup> At present, there are no precise statistics on how many pushcart customers develop food poisoning, although a 1995 City Council unrepresentative and self-reported survey of 401 New York pedestrians found that one out of 10 reported becoming ill after eating from a New York pushcart.<sup>2</sup>

The purpose of this study was to (1) determine the numbers and classifications of mobile food vendors currently operating in New York City, and (2) observe the everyday food safety practices of a selected sample of processing mobile food vendors on the City's streets. The practices of 10 processing mobile food vendors in midtown Manhattan were observed by the investigator, noting violations of the New York City Health Code.

#### **METHODS**

This is a non-randomized, observational study of the practices of 10 processing mobile food vendors found operating on a March 2001 weekday in a 38-block area of midtown Manhattan (New York City) bounded by 43rd and 62nd Streets and Madison and Sixth Avenues. The number of active mobile food vendor permits and types of mobile food vendor permits in New York City as of March 2001 were requested from the Inspections Division of the New York City Department of Health (see Table 1). Of the 4,115 mobile food vendor permits, over 80% were citywide permits for vending privileges in any of the five boroughs. Seasonal permits are valid in all of the boroughs of the city from April 4 to October 25 of one year. To become familiar with the practices of mobile vending inspection and the spectrum of issued violations, we arranged to spend a day in the field with a department inspector of the New York City Department of Health. On a weekday in March 2001 between the hours of 1:00 and 4:00 p.m., one of the authors (BMB) accompanied a health inspector on an evaluation of five mobile food vendors. In this three-hour period, five mobile food vendors were inspected and four received at least one violation. (See Table 5 for a list of the most commonly issued violations.) The following week, on a Friday afternoon between the hours of 12:00 and 5:00 p.m., 10 processing mobile food vendors in midtown Manhattan were privately evaluated for health code violations. The investigator casually observed the practices of each of these vendors for twenty minutes. Evaluated vendor actions are shown in Table 2.

## Vendor hands (Article 81.07k, NYC Health Code)<sup>3</sup>

The number of foods prepared for customers during a 20-minute period was recorded, and we documented the incidence of hand contact, either gloved or non-gloved. The number of gloves worn by vendors was recorded, as were the number of vendors with dirty hands or dirty gloves, defined to include only hands or gloves that were obviously discolored or greasy and

Table 1. Active mobile food vendor permits in New York City as of March 2001

Permit type	Active permits
Citywide <sup>a</sup>	218
Citywide seasonal <sup>b</sup>	657
Restricted <sup>c</sup>	610
Borough-specific <sup>d</sup>	130
Total	4,115

 $<sup>^{\</sup>mathrm{a}}\mathrm{Valid}$  for two years with access to any of the five boroughs of New York City.

noticeable from a distance of approximately 10 feet. We also recorded the number of times the vendor either washed his/her hands or changed gloves.

# Food safety (Chapter 6.01 and Article 81, NYC Health Code)<sup>3,5</sup>

It is mandated by the New York City Department of Health that uncooked meats must be kept at a temperature of less than 40°C. Cooked meats must be held at a temperature below 40°C or above 145°C and should be served at a temperature greater than 145°C to avoid a potential bacterial contamination hazard. The temperatures of any meat or poultry that are not on a heating or cooking portion of the vendor cart are routinely measured directly via thermometer by health inspectors. Because this study was conducted by casual observation, temperature measurements were not obtained; however, it was possible to quantify how previously cooked food was handled. Previously cooked food refers to meat products that appeared previously cooked and then stored on a non-heated portion of the vendor cart for the duration of the 20-minute observation period, likely at a temperature below the temperature 145°C necessary to prevent bacterial contamination. Potential contamination from uncooked meats was evaluated by observing the number of times the vendors' hands or vendors' utensils made contact with uncooked beef or poultry and shortly afterward contacted another food product subsequently served to a customer.

# Other unsanitary behaviors (Article 81.07a NYC Health Code)<sup>3</sup>

Other potentially contaminating vendor actions, including spitting on the sidewalk, smoking, or touching the mucous membranes of one's mouth or nose, were also noted.

# **RESULTS**

All of the food vendors observed during the study period were processing vendors located in midtown Manhattan and each served similar menus. Foods prepared were mainly Middle-Eastern cuisine consisting of chicken, beef, kebab, sausage, vegetables, and rice. All evaluated vendor actions are presented in Table 2.

# Vendor hands

Of 10 processing mobile food vendors, five did not wear gloves, three wore gloves on both hands, and two wore a glove on one hand (Table 3). Forty percent of vendors had hands (two vendors) or gloves (two vendors) that were dirty to the naked eye from a distance

<sup>&</sup>lt;sup>b</sup>Valid for one season (April 4 to October 25) with access to any of the five boroughs of New York City.

<sup>&</sup>lt;sup>c</sup>Agreement with the City of New York to vend in a specific location in one of the five boroughs.

<sup>&</sup>lt;sup>d</sup>Valid for two years with access to only one particular borough.

Table 2. Violations by ten processing mobile food vendors, each evaluated for twenty minutes of casual observation

Vendor <sup>a</sup>	Number of exchanges <sup>b</sup>	Any hand contact <sup>c</sup>	Gloves <sup>d</sup>	Vending w/ dirty hands/ gloves <sup>e</sup>	Washed hands/ changed gloves <sup>f</sup>	Previously cooked food <sup>g</sup>	Food not protected from contamination <sup>h</sup>	Smoking or spitting <sup>i</sup>	Touched mucous membranes <sup>k</sup>
1	14	14	0	1	0	1	1	0	1
2	10	9	0		0	1	1	0	1
3	12	6	1		0	1		0	
4	7	1	2		0	1		0	
5	7	3	0	1	0	1		0	1
6	8	5	2	1	0	1		0	
7	9	3	0		0			0	
8	9	7	2		0		1	0	
9	10	4	1	1	0			0	1
10	12	8	0		0	1	1	0	
Total	98	60	8	4	0	7	4	0	4

<sup>&</sup>lt;sup>a</sup>Vendors were located in a 38 block radius in midtown Manhattan from 43rd to 62nd Streets between Madison and Sixth Avenues.

of approximately 10 feet (Table 3). No vendors washed their hands or changed gloves in the 20-minute observation period. Non-gloved vendors touched 71% of prepared foods served to customers with bare hands and gloved vendors touched 50% of prepared foods served to customers with gloved hands in 20 minutes (Table 4). These differences were not found to be statistically significant by a chi-square test.

# Food safety

Ready-to-eat foods may also be contaminated by bacteria from raw meat.2 Four of ten vendors in this study demonstrated unsanitary behaviors that contaminated bread products served to customers with bacteria from raw poultry or beef. In each of these four cases, vendors touched uncooked poultry or beef with bare hands (two vendors), gloved hands (one vendor), or tongs (one vendor). Shortly afterward, while serving the same customer, these same hands or tongs touched a bread

product that was served to a customer. These practices promote the spread of pathogens of food-born illness including Salmonella and Listeria. 6,7 Of 10 processing mobile food vendors, seven had previously cooked chicken or beef located on a non-heating/cooking area of the vendor cart.

Table 3. Percent of vendors, gloved or non-gloved, with dirty gloves or hands, and washed hands or changed gloves during the observation period

	Vendors	(percent)
No gloves	3	(30)
Two gloves	3	(30)
One glove	2	(20)
Dirty gloves or hands	4	(40)
Washed hands or changed gloves	0	(0)

<sup>&</sup>lt;sup>b</sup>Number of meats cooked and served to customers.

<sup>&</sup>lt;sup>c</sup>Number of times vendor hands (gloved or non-gloved) contacted meats cooked and served to customers.

<sup>&</sup>lt;sup>d</sup>Number of gloves worn by vendor.

eNumber of vendors with hands or gloves that were obviously dirty or greasy and noticeable from a distance of 10 feet.

<sup>&</sup>lt;sup>f</sup>Number of times vendors either washed hands or changed gloves.

<sup>&</sup>lt;sup>9</sup>Refers to meats previously cooked and stored on a non-heating/cooking area of vendor cart.

hRefers to incidence of vendor touching uncooked poultry or beef with the same gloved hand(s), non-gloved hands, or utensil that less than one minute later contacted a bread product that was served to a customer.

Number of incidences vendor smoked or spit.

Refers to violations of cart location. All violations of this type were carts within 10 feet of a crosswalk, subway, or driveway.

<sup>&</sup>lt;sup>k</sup>Vendor touched with gloved or non-gloved hands oral or nasal mucous membranes and not followed by hand washing or glove change.

Table 4. Percent of food-han	d contact by gloved	and non-gloved vendors
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Non-gloved vendors	Hand contact (percent)	Gloved vendors	Hand contact (percent)
Vendor 1	14 of 14 (100)	Vendor 3	6 of 12 (50)
Vendor 2	9 of 10 (90)	Vendor 4	1 of 7 (14)
Vendor 5	3 of 7 (43)	Vendor 6	5 of 8 (63)
Vendor 7	3 of 9 (33)	Vendor 8	7 of 9 (78)
Vendor 10	8 of 12 (67)	Vendor 9	4 of 10 (40)
Total <sup>a</sup>	37 of 52 (71)	Total <sup>a</sup>	23 of 46 (50)

<sup>&</sup>lt;sup>a</sup>There is no significant difference in percent of hand contact between non-gloved and gloved vendors by a chi-square test.

#### Other unsanitary behaviors

No food vendors were found spitting or smoking. Two non-gloved vendors were observed touching the mucous membranes of their mouth. One non-gloved vendor was observed touching the mucous membranes of his nose. One singly gloved vendor was seen blowing his nose into a napkin. None of these actions were followed by handwashing or changing glove(s).

#### **DISCUSSION**

The incredible variety of vendor-prepared foods that is currently offered on the sidewalks of New York has quickly become part of the city's street culture. On any day there can be up to 4,115 food vendors operating on the city streets. The majority of vendors have citywide permits that allow them vending privileges on any street of the five boroughs, with the exception of some locations restricted by the city government. Thus, it can be difficult for the New York City Health Department to keep track of individual vendors. Some operators are nomadic, always looking for a better location. Other vendors elude regulation by frequently changing home addresses and vending corners. City records show that over 800 times in 1996 and 1997 the city could not find a cart that it went out to inspect.<sup>2</sup> These factors also make it difficult for the public to access information about specific street vendors and to report complaints. Information requests and submission of complaints regarding mobile vendors require either the vendor or cart identification number, but these vendors may not be in the same location the following day. On the other hand, records of health violations by any established restaurant in New York City are available to the public by the Health Department and are readily accessible on the internet.8

Officials from the Department of Health revealed to the *Daily News* that in 1998, the city executed 7,500 unannounced inspections and issued 4,050 violations.<sup>9</sup> This was up from the previous year, in which 1,826

inspections were performed and 1,340 violations were issued.<sup>9</sup> In a *New York Times* study conducted in 1997, a review of 610 records of food-cart operators found that half had received at least one critical violation.<sup>2</sup>

In this sampling of 10 processing mobile food vendors in midtown Manhattan, every vendor violated the New York City Health Code at least one time within 20 minutes of observation. These violations included barehand contact with food, vending with dirty hands, foods stored at inappropriate temperatures, and foods not protected from contamination with raw meat. Three non-gloved vendors were seen touching the mucous membranes of their lips or nose and one gloved vendor was seen blowing his nose into a napkin. All of these violations compromise the safety of the vendor prepared foods; none of them washed their hands or changed gloves. These are critical practices in preventing food handlers from spreading pathogenic organisms such as Hepatitis A, fecal coliforms, and Staphylococcus aureus.<sup>6</sup>

These findings are consistent with the findings from the limited number of studies looking at the safety of mobile vendor foods. In 1995, the New York City Council Office of Oversight and Investigation compared the food handling practices of 254 Manhattan processing and non-processing mobile food vendors with the city health code. Seventy percent of these vendors were found to have touched food with their bare hands and none of the vendors washed their hands after selling food or handling money. It was also found that 77% did not have their hair covered, 85% did not keep utensils in cleaning fluid, and 11% kept condiments in open containers.4 Interestingly, the City Council study also found that tests on one chicken kebab showed the food to have 28 times the acceptable bacteria limit and two falafels had alarmingly high streptococcal bacterial counts.2

Another important issue influencing food contamination is food storage temperature. Food that is maintained outside a safety zone of less than 40°C for cold

Table 5. Descriptions and codes of the most commonly enforced mobile food vendor regulations by the New York State Department of Health. Minimum and maximum penalty fines and authorization for seizure of vendor equipment are also reported. The violations evaluated in this study are represented by \*.

Code	Fine	Seizure	Violation
Article 17-307	\$500-\$1000	Υ	No license (ID badge)
Food vendor processing	Determined by judge	Ν	*Decal not conspicuously displayed on cart
	Determined by judge	Υ	Refusal to permit inspection
	Determined by judge	Ν	*Cart on a sidewalk less than 12 feet wide
	Determined by judge	Ν	*Cart against building or structure
	Determined by judge	Ν	Items not in or under cart
	Determined by judge	Ν	*W/in 20 ft. of entrance, against display window
	Determined by judge	Ν	*In bus stop, w/in10 ft. of crosswalk/subway/driveway
	Determined by judge	Ν	Vending where parking is prohibited
	Determined by judge	Υ	Vending in a park with no park permit
	Determined by judge	Υ	Failure to move for exigent circumstances
	Determined by judge	Υ	Vending at restricted time or place
Chapter 6.01 24R RCNY	\$200-\$400	Υ	Non-processing cart selling processing food <sup>1</sup>
Article 81	\$200-\$400	Ν	*Food not protected from contamination <sup>1</sup>
NYC Health Code	\$300-\$600	Ν	*Food not kept at proper temperature <sup>1</sup>
	\$300-\$600	Ν	Food worker with communicable disease <sup>1</sup>
	\$200-\$400	Ν	No food protection certificate
	\$300-\$600	Ν	*Bare hand contact <sup>1</sup>
	\$100-\$200	Ν	Inadequate plumbing <sup>1</sup>
	\$100-\$200	Ν	Improper storage of waste <sup>1</sup>
	\$100-\$200	Ν	*Smoking or spitting and handling food <sup>1</sup>
	\$200-\$400	Υ	No hot/cold water, no hand washing facility <sup>1</sup>
	\$100-\$200	Ν	Cart and equipment unclean <sup>1</sup>
Article 89	\$1000	Ν	*No permit decal
NYC Health Code	\$500	Ν	Creating a nuisance (smoke)
	\$1000	Ν	*Cart not abutting the curb
	\$1000	Ν	No permit available
	\$400	Ν	Cart occupying >10 ft. linear space on sidewalk
	\$500	Ν	*Vending with dirty hands <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Violations that are relevant to food safety.

food and greater than 145°C for hot foods acts as an incubator for pathogenic bacteria whether the food is raw, partially cooked, or fully done.<sup>6</sup> Food vendors often partially or fully cook pork, chicken, and beef products ahead of time, store them, and then reheat them when requested by a customer. These final stages of cooking are often inadequate to destroy bacteria that may be present.<sup>10</sup> In this study, 70% of vendors were discovered to have cooked meat products stored on a non-heating or non-cooking portion of the vending cart. Although the temperatures of these foods were not directly tested, these products remained stationary for the entire 20-minute observation of all vendors. It is possible that these foods remained there for an extended time outside of the observation period and were not maintained within the temperature safety zone. Similar findings were revealed by an Inside Edition Investigative Report that found over half of foods purchased from New York City street vendors were served at temperatures well below the safety zone for cooked foods. 11 In addition, a New York Times study headed by Dr. Robert Gravani, a food scientist at

Cornell University, tested street fair food, choosing carts at random over two days. Only 12 of 51 items were hot enough to be considered safe.<sup>2</sup>

Several limitations of this study should be mentioned. The vendor population was limited to 10 vendors and demographic data on these vendors was lacking with respect to age, sex, years of experience, and previous history of violations. Each of the vendors in this study was located in the same neighborhood in midtown Manhattan and all served similar processed food, mainly a Middle-Eastern cuisine. Vendor licenses and food safety certificates are the first documents to be requested during a city inspection but, unlike cart permits, are not required to be displayed on the cart. Due to the casual observation methods used in this study, vendor licensing could not be assessed. All of the cart permits, however, were clearly exhibited on the carts of these particular vendors. Vendors were observed for 20 minutes each, and although this is a limited observation period, a significant number of vendor-customer food exchanges (98 exchanges, Table 2) were recorded. In addition, although foods previously cooked and kept on a non-heated portion of the vendor cart for the 20-minute period were considered by the authors to be at an unsafe temperature, confirmation with a thermometer was similarly precluded by the design of this study.

Despite the clearly apparent dangers of unsanitary vending shown in this and other reports, there are no good data linking food poisoning with mobile food vending. This may be due either to under-reporting of suspected food-borne illness or to failure of the health department to investigate complaints. In a *New York Times* review of 2,700 city inspection reports from 1996 and 1997, weeks and months often passed before inspectors investigated pushcarts blamed for illness.<sup>2</sup> These reports also show that vendors without permits or safety training and even chronic health violators are allowed to continue selling food. In these two years, fewer than 20 carts were shut down for food violations.

Another pitfall of the system lies in the food safety education of vendors. One of the necessary prerequisites for mobile vending of foods in New York City is enrollment in a 15-hour food safety course and a passing score on a 50-question multiple-choice examination. Those fulfilling these criteria are awarded a food protection certificate. However, a valid food protection certificate is not required on inspection if a vendor can produce a current receipt showing registration in the food safety course. Thus, the current system is set up to accommodate inexperienced vendors by allowing them to operate for some time with no training in food safety. Others in the vending industry feel

that the course is unsuccessful because it is geared too broadly to all food service workers and lacks specific focus on mobile vending food safety.<sup>9</sup>

A potential solution is not complicated and would involve readily available resources. The city government bears a huge responsibility to ensure proper regulation of the safety practices of street food vendors. At this time, further studies and joint efforts with the New York City Department of Health are needed to fairly assess their means of promoting food safety and the resulting effects on vendor practices.

A few speculations on improvements can be made. At the vendor level, implementation of a comprehensive, mandatory vendor education program with exclusive focus on mobile vending issues may improve the current situation. Anyone who is so inclined can purchase a license and permit; however, the Department of Health could consider implementing a stricter inspection system with more stringent consequences for violators to maximize the public's safety and protection from food-borne diseases. As more vendors take to the streets to prepare food for the public, there is an increasing burden on the city to protect the public from these potential dangers.

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## **REFERENCES**

- New York City Health Code. Mobile food vending, article 89.
- St. George D. In street vendors' smorgasbord, threat of sickness lurks. The New York Times 1998 May 17;Sect. 1:1 (col. 2).
- New York City Health Code. Mobile food vending, article 81.
- Liff, B. City council food fight state. New York Daily News 1995 Sept 14.
- 5. New York City Health Code. Chapter 6.01, 24 RCNY.
- Roller S. Physiology of food spoilage organisms. Int J Food Microbiol 1999;50:151-3.
- Schwartz B, Broome, CV, Brown, GR, et al. Association of sporadic listeriosis with consumption of uncooked hot dogs and undercooked chicken. Lancet 1988;8614: 779-82.
- New York City Department of Health restaurant inspection information. Available from: URL: http://207.127.96.244/scripts/webfood.pl
- Rein L. Crackdown on food carts. New York Daily News 1998 Dec 15.
- Mead PS, Slutsker L, Griffin PM, Tauxe RV. Foodrelated illness and death in the United States. Emerg Infect Dis 1999;5:607-25.
- 11. Meager M. Vendor Food. Inside edition. New York: CBS Television; 1998 Sep 9.